

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PAPKE L ET AL: "Different iterative decoding algorithms for combined concatenated coding and multiresolution modulation" COMMUNICATIONS, 1994. ICC '94, SUPERCOMM/ICC '94, CONFERENCE RECORD, 'SERVING HUMANITY THROUGH COMMUNICATIONS.' IEEE INTERNATIONAL CONFERENCE ON NEW ORLEANS, LA, USA 1-5 MAY 1994, NEW YORK, NY, USA, IEEE, 1 May 1994 (1994-05-01), pages 1249-1254, XP010126691 ISBN: 0-7803-1825-0 page 1250, left-hand column, paragraph 2.1 page 1250, left-hand column, line 21 -right-hand column, line 17	1-8, 13-17
Y	page 1250, right-hand column, line 37 -page 1251, left-hand column, line 3 page 1251, left-hand column, line 21 - -/--	9,10

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

23 February 2004

Date of mailing of the international search report

02/03/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Papantoniou, A

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>line 45 page 1251, right-hand column, line 9 - line 12 page 1251, right-hand column, line 25 -page 1252, left-hand column, line 14; figures 2,4</p> <p>-----</p> <p>KHAIRY M M ET AL: "ASYMMETRIC MODULATION AND MULTISTAGE CODING FOR MULTICASTING WITH MULTI-LEVEL RECEPTION OVER FADING CHANNELS" MILCOM 1999. IEEE MILITARY COMMUNICATIONS CONFERENCE PROCEEDINGS. ATLANTIC CITY, NJ, OCT. 31 - NOV. 3, 1999, IEEE MILITARY COMMUNICATIONS CONFERENCE, NEW YORK, NY: IEEE, US, vol. VOL 1 OF 2 CONF. 18, 31 October 1999 (1999-10-31), pages 92-96, XP000921925 ISBN: 0-7803-5539-3 page 93, left-hand column, line 3 - line 24 page 93, right-hand column, line 14 - line 24 page 94, right-hand column, line 18 - line 39 page 95, left-hand column, line 1 - line 18 page 95, right-hand column, line 17 - line 32; figure 3</p>	<p>1-4,6,7, 12,14-17</p>
X	<p>EP 0 540 232 A (AMERICAN TELEPHONE & TELEGRAPH) 5 May 1993 (1993-05-05) page 2, line 45 - line 52 page 6, line 19 - line 54 page 7, line 2 - line 15; figures 2,15,16</p>	<p>1-4, 14-17</p>
Y	<p>KUEHN V: "EVALUATING THE PERFORMANCE OF TURBO CODES AND TURBO-CODED MODULATION IN A DS-CDMA ENVIRONMENT" IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, IEEE INC. NEW YORK, US, vol. 17, no. 12, December 1999 (1999-12), pages 2138-2147, XP000920309 ISSN: 0733-8716 page 2143, right-hand column, line 1 - line 7 page 2144, left-hand column, line 4 - line 10</p>	<p>9,10</p>
A	<p>-----</p> <p>-/--</p>	<p>1,5-8</p>

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>MARTIN P A ET AL: "ON MULTILEVEL CODES AND ITERATIVE MULTISTAGE DECODING" IEEE TRANSACTIONS ON COMMUNICATIONS, IEEE INC. NEW YORK, US, vol. 49, no. 11, November 2001 (2001-11), pages 1916-1925, XP001076549. ISSN: 0090-6778 page 1917, left-hand column, paragraphs 1,4,5 page 1917, right-hand column, paragraph 1 page 1918, left-hand column, paragraph 2 -right-hand column, paragraph 1 page 1921, left-hand column, paragraph 2; figure 2</p> <p>----</p>	1,14-17
A	<p>BURR A G: "Design of optimum M-PSK codes for Rayleigh fading channel" IEE PROCEEDINGS: COMMUNICATIONS, INSTITUTION OF ELECTRICAL ENGINEERS, GB, vol. 147, no. 1, 11 February 2000 (2000-02-11), pages 13-17, XP006013954 ISSN: 1350-2425 page 13, right-hand column, paragraph 3 page 15, last line, paragraph 3 page 16, left-hand column, paragraph 3; figure 5</p> <p>----</p>	1,14-17
A	<p>WO 01 67617 A (QUALCOMM INC) 13 September 2001 (2001-09-13) page 3, line 27 - line 34 page 10, line 19 - line 25 page 16, line 10 - line 20 page 19, line 12 - line 25 page 22, line 4 - line 15 page 24, line 11 - line 32</p> <p>-----</p>	1,14-17

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0540232	A	05-05-1993	US 5305352 A	19-04-1994
			DE 69224034 D1	19-02-1998
			DE 69224034 T2	23-04-1998
			EP 0540232 A2	05-05-1993
			JP 2801481 B2	21-09-1998
			JP 6292160 A	18-10-1994
WO 0167617	A	13-09-2001	US 6594318 B1	15-07-2003
			AU 4348501 A	17-09-2001
			BR 0109045 A	25-03-2003
			CN 1429427 T	09-07-2003
			EP 1264408 A2	11-12-2002
			JP 2003526987 T	09-09-2003
			WO 0167617 A2	13-09-2001